

variables. **RESULTS:** Expenditures on medicines declined due to negative impact of EML on quantities of medicines utilized per capita as well as on real prices. The quantities declined on average by 1.7 DDDs per capita per year. The medicine price reduced on average by about US \$0.0013 per defined daily dose. The real cost saved for the years 2000 to 2003 was about US \$ 5.9 million. The EML was effective in shifting all prescribing indicators towards the standard values. **CONCLUSIONS:** The PMOH should allocate more resources for pharmaceutical budget in the future. The EML was successful in containing medicine cost, and careful review and update of EML should further increase the savings. The development and implementation of antibiotic medicine policy is an urgent need. Introduction of treatment protocols for the most common diseases, and continuous education on rational medicine use for medical staff is required.

PHP17

EFFECTS OF GENERIC SUBSTITUTION ON THE DEVELOPMENT OF PHARMACEUTICAL EXPENDITURES DURING THE PERIOD JANUARY 1998 TO MAY 2005

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OBJECTIVE: Mandatory generic substitution of prescribed drugs aiming to moderate the cost increase of pharmaceuticals within the pharmaceutical benefits scheme, PBS, was introduced in October 2002. The study aims to investigate if the introduction of generic substitution had an impact on the development of drugs costs in Sweden for prescribed drugs within PBS and in total. **METHODS:** Data on the sales of pharmaceuticals to each county council and to the country in total was obtained. Data comprised both total sales (prescriptions, hospitals sales and over the counter sales) and sales of prescribed drugs within the PBS was used for the period January 2000 to May 2005. Expenditure data was expressed as retail prices excluding VAT per 1000 inhabitants in Swedish krona (SEK). Interrupted time series analysis was used to investigate effects related to generic substitution. **RESULTS:** The county councils' total cost for pharmaceuticals increased from 230 SEK/inhabitants in January 2000 to 280 SEK/inhabitant in May 2005. The county councils' average monthly costs for PBS pharmaceuticals lay in three segments one had a constant cost of ~40 SEK/inhabitant over the study period, the second segment increased from ~140 SEK/inhabitant in 2000 to ~170 SEK/inhabitant in late 2002 where it stabilized and the third segment ~190 SEK/inhabitant in 2000 and increased to ~210 SEK/inhabitants in late 2002 and after that it was constant. Generic substitution was associated with reduced the slope of increase of costs for drugs within the PBS for the whole country and several of the county councils according to preliminary analyses. This was also seen for several of the county councils' total costs immediately after the introduction of generic substitution. **CONCLUSIONS:** Preliminary analyses show that generic substitution had an impact in the pace of increase of pharmaceutical expenditures.

PHP18

GEOGRAPHICAL INFORMATION SYSTEM (GIS) ANALYSIS OF SMALL AREA INEQUALITIES IN DRUG EXPENDITURES IN HUNGARY

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OBJECTIVES: The aim of this study is to analyse the small are inequalities in the health insurance reimbursement of drugs in Hungary. **METHODS:** Data derives from the central database of the Hungarian National Health Insurance Fund Administration (OEP) covering the year 2003 and containing all the drug reimbursement information from the whole country. For the analysis we used three different kinds of drug expenditures according to the source of funding: health insurance reimbursement (paid by OEP), maximum reimbursement for socially handicapped (coming from state budget), co-payment of patients (paid out-of-pocket of patients) for subsidized drugs. The statistical analysis was carried out with SPSS version 12.01. Small areas refer to the postal code (zip code) districts of Hungary and the patients were assigned to small areas according to their permanent address. The Geographical Information system (GIS) analysis was carried out by the MapInfo Professional software version 7.5. **RESULTS:** The health insurance reimbursement of drugs paid by the National Health Insurance Fund Administration is significantly higher ($p < 0.05$) in the southern and eastern part of Hungary. The maximum reimbursement for socially handicapped paid by the National Health Insurance Fund Administration is also significantly higher ($p < 0.05$) in the eastern part of Hungary. The co-payment of patients is significantly higher ($p < 0.05$) in the western and central regions of Hungary. The results are presented on GIS maps also. **CONCLUSIONS:** The GIS analyses help to identify the geographical inequalities of the drug expenditures coming from different sources. In the more developed regions (western and central regions) the willingness and ability to pay the co-payment is higher. In the less developed regions of Hungary (northern and eastern regions) the people more rely on the reimbursement for socially handicapped financed from the state budget.

PHP19

PRESCRIPTION DRUGS AND ANNUAL BENEFIT CAPS—DO PATIENTS ANTICIPATE EXCEEDING THE CAP?

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OBJECTIVE: To investigate whether patients with a \$1,000 annual prescription drug benefit cap reduced their drug consumption prior to exceeding the cap threshold. Previously, we found that the drug cap reduced overall drug consumption during the year. **METHODS:** All 183,640 subjects were 65+ years with Medicare insurance, had tiered copayments (\$10 for generic & \$15–35 for brand drugs), and were members of an integrated, prepaid delivery system: 146,050 subjects had an annual \$1000 drug benefit limit; and 37,590 subjects had no benefit limit (because of supplementary insurance from former employers rather than individual choice). To compare drug consumption (measured in dollars) below the cap amount, we examined the risk of cap and non-cap subjects consuming \$250, \$500, \$750, and \$1000 in 2003 using proportional hazard models for each of these thresholds. We adjusted for age, gender, race/ethnicity, brand copayment amount, prior visits, socioeconomic status, comorbidity, and having a regular primary care provider. **RESULTS:** Among the 183,640 subjects, 16,657 (11%) of subjects with a cap and 7,888 (21%) of subjects without caps exceeded the \$1,000 cap threshold during 2003. After adjustment for covariates, subjects with a cap were significantly less likely to exceed the \$1,000 cap threshold (HR = 0.61, 95% CI: 0.56–0.66), compared with subjects without a cap. Similarly, subjects with a cap were significantly less likely to exceed lower drug consumption thresholds during the year, compared with

subjects without a cap: HR = 0.75 for \$750 (95% CI: 0.70–0.80); HR = 0.80 for \$500 (95% CI: 0.75–0.85); HR = 0.81 for \$250 (95% CI: 0.77–0.85). **CONCLUSIONS:** These preliminary analyses indicate that patients with annual drug benefit caps appear to anticipate exceeding the benefit limit, and reduce their drug consumption prior to reaching the cap amount. Further research is needed to assess how patients reduce their drug consumption and the clinical and economic impact.

PHP20

GENERIC DRUG PRICES REMAIN HIGHER IN CANADA THAN IN THE UNITED STATES

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OBJECTIVE: This paper compares the prices of top selling generic drugs in Canada with prices for comparable generics in the United States (updating a 2002 study). **METHODS:** We compared manufacturer prices of 21 top selling (in 2004) generic prescription medicines in Canada that were marketed in both Canada and the US. Sources of Canadian prices included government reimbursed prices for Quebec, British Columbia and Saskatchewan. US prices were sourced from the Federal Supply Schedule (FSS) and three state Medicaid program Maximum Allowable Cost (MAC) lists. The prices of a subset of 11 drugs that appeared in both studies were compared to investigate trends. **RESULTS:** Of the 21 leading generic drugs, 20 had higher prices in Canada. Canadian prices were higher than US prices on all measures: Mean: +238%; Weighted Mean: +259%, Median +128%. If Canadians could access FSS prices for the 21 sample drugs, annual savings would exceed C\$440 million. If the price differences observed are extrapolated to all generic drugs sold in Canada, annual savings could exceed C\$1 billion. Canadian prices were also higher than state Medicaid MAC prices: Mean: +44%; Median: +15%. When comparing the 11 drugs that were included on both studies, a clear trend emerges: US prices have decreased 31% since 2001, while Canadian prices have remained stable. **CONCLUSIONS:** US prices of top-selling generics are lower than those in Canada and the price gap is widening. US generic prices are now on average 238% lower than those in Canada compared to 155% in 2001. Provincial government policies that establish Canadian generic prices at a percentage of branded products are one of the factors that appear to discourage price competition. Unlike Canada, US generic prices typically fall over time as more manufacturers enter the market and compete for government contracts and formulary listings.

PHP21

PHARMACEUTICAL POLICY IN GREECE: RECENT DEVELOPMENTS AND THE ROLE OF PHARMACOECONOMICS

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OBJECTIVE: To evaluate the role of pharmacoeconomics in the Greek pharmaceutical environment. **METHODS:** The existing pharmaceutical reimbursement system in Greece and the proposal for the new pharmaceutical policy, announced in November 2004 by the Greek Ministry of Health and Social Solidarity were examined. **RESULTS:** The current reimbursement system in Greece consists of a positive reimbursement list. The main criterion for a product to be accepted for reimbursement is its daily drug cost in comparison to the average drug cost of the therapeutic cluster to which it belongs. Nevertheless, other factors are also taken into account in order to approve reimbursement, such

as the non-mandatory submission of pharmacoeconomic studies, even though their role in a positive or negative reimbursement decision is not clarified. The new system announced by the Ministry states that it plans to abolish the reimbursement list. In the place of the current reimbursement system it proposes, among other measures that aim to contain costs and alleviate patient burden, the implementation of a rebate system where drugs are grouped into therapeutic clusters and a reference price is calculated for each cluster. Pharmaceutical companies will return the weighted difference between their products' price and the reference price to social insurance organizations. The proposal states that rebate levels can be adjusted based on pharmacoeconomic evidence in order to reward cost-effective therapies. Additionally, the proposal announces the establishment of a Health care Technology Evaluation Agency that will evaluate technologies and produce guidelines based on evidence based medicine and cost-effectiveness parameters. This Agency will also evaluate pharmacoeconomic evidence in cases where there is a need to adjust rebate levels for specific products. **CONCLUSIONS:** At present, pharmacoeconomics play a limited role in the reimbursement of pharmaceuticals in Greece. The new pharmaceutical policy proposal reinforces the role of pharmacoeconomics in Greece, which is a welcome development.

PHP22

EFFECTS OF DECENTRALIZED RESPONSIBILITY FOR COSTS OF OUTPATIENT PRESCRIPTION DRUGS ON THE PHARMACEUTICAL COST DEVELOPMENT IN SWEDEN

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OBJECTIVES: To cut the escalating costs for pharmaceuticals the responsibility for costs of outpatient prescription drugs was decentralized from the government in Sweden to the county councils in 2002. The study aims to investigate if the introduction of decentralized responsibility had an impact on the pharmaceutical cost development in Sweden. **METHODS:** Monthly sales data, on the pharmaceutical benefits scheme, PBS, to each county council was obtained for the period January 2000 to May 2005. Interrupted time series analysis was used to investigate the effects of the introduction of decentralized responsibility on pharmaceutical costs in both total sales and sales of prescription drugs within total and within the PBS. This was investigated both on country level and with comparisons between county councils with different budget models for the decentralized responsibility. The investigation is continuing. **RESULTS:** Analyses show that there was no significant change in the cost trend associated with the introduction of decentralized responsibility for costs of outpatient prescription drugs. The county councils' costs of prescribed drugs covered by the PBS were on three levels; €19.5/inhabitant in 2000 and €23.9/inhabitant in May 2005, the second €15.7/inhabitant in 2000 and €19.5/inhabitant in May 2005 and the third €3.6/inhabitant in 2000 and €6.0/inhabitant in May 2005. All county councils remained on the same level throughout the study period. The budget model for outpatient prescription drugs had no impact on the level of costs. When considering total drug expenditures including inpatient drug costs the three segments diminish and all county councils are gathered between €21.7–26.0/inhabitant in 2000 and €28.2–34.7/inhabitant in May 2005. **CONCLUSIONS:** Pharmaceutical costs increased despite the introduction of decentralized cost responsibility for drugs in outpatient care. The budget models had no clear impact on the cost trend.